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Vol. 51 No 9

BULLETIN
OF THE
TORREY BOTANICAL CLUB

SEPTEMBER, 1924

Some Senecioid Genera—I

P. A. RYDBERG

CACALIA L. Sp. Pl.

Bentham & Hooker in their Genera Plantarum included in Senecio quite a number of genera proposed by various authors, among them *Ligularia* Cass., *Cacalia* L., *Psacalium* Cass., *Kleinia* Haw., etc. I shall confine myself in this paper to the genera of North America only, and especially those species which have been known as members of the so-called genus *Cacalia*.

The first questions which present themselves are: Can this genus be separated from *Senecio* and what is the reason for merging it in that genus? The characters by which it is usually distinguished are the white or cream-colored, not yellow, disc-corollas, the absence of ray-flowers, and the more elongate corolla-lobes. Several of the true Senecios have cream-colored disc-corollas, and quite a number of them are rayless. A few species, usually included in *Cacalia*, have short corolla-lobes. There is no reason therefore why the genus *Cacalia*, as usually instituted, should be excluded from *Senecio*. The trouble has arisen because botanists have included in *Cacalia* several different types which can easily be distinguished from each other and from *Senecio* if considered separate but not if taken as an aggregate.

If these groups can be separated and segregated as distinct genera, another question arises: To which group should the name *Cacalia* L. be applied?

In Species Plantarum the genus *Cacalia* contains ten species, divided in two groups. The type must be sought in the second group, for at the end of the genus Linnaeus made the statement that the two genera, *Cacalia* and *Kleinia*, should be united.

[The BULLETIN for August (51: 335-368) was issued August 22, 1924.]

By the genus *Kleinia* he meant the first group of four species, which all had been known as *Kleinia*. Of the species of the second group only the last two, *Cacalia atripicifolia* and *C. alpina*, had been known as *Cacalia* before Linneaus' time. The name *Cacalia*, applied to the last one, dates back to Vaillant and L'Obel. *C. alpina* L. or *Adenostylis alpinus* is therefore the historical type of *Cacalia*.

It is true that Linnaeus did not always follow the general accepted interpretation of a name but occasionally made a quite different application of the same. Let us see how he treated the genus in the fifth edition of his Genera Plantarum. Here he credited the name to Vaillant and also cited Tournefort and gave as synonyms: *Kleinia* of former editions, *Cacalianthemum* Dill., *Porophyllum* Vaill., and questionably *Tithymaloides* Klein. The first four species of the Species Plantarum, which constituted *Kleinia*, he therefore did not regard as typical *Cacalia*. This disposes also *Cacalianthemum* Dill. and probably *Tithymaloides* Klein, which belong to the same species. *Porophyllum* Vaill. became *Cacalia Porophyllum* L. *Cacalia sonchifolia* L. and *C. hastata* L. were placed in the genus for the first time in Species Plantarum and only Linneaus himself had used *Cacalia* for *C. suaveolens* in his Hortus Upsaliensis. *C. atripicifolia* L. had been known as *Cacalia virginiana glabra*, etc., by Morrison, while *C. alpina* had been known as *Cacalia* by many authors. Furthermore Linnaeus' diagnosis of the genus points to this species especially the description of the style tips: "*Stigmata duo, oblonga, revoluta.*" This is characteristic of *Adenostylis alpinus* which on account of its oblong style branches has been placed in the tribe EUPATORIEAE, but which Dr. B. L. Robinson rightly restored to the SENECIONEAE. *C. atripicifolia* as well as *C. suaveolens* has a true *Senecioid* style, with truncate style-branches. *Cacalia alpina* L. must therefore be regarded as the type of *Cacalia*, and *Adenostylis* becomes a synonym. *Cacalia* is to be excluded from the North American flora.

PSACALIUM Cass. Dict. Sci. Nat. **43**: 461. 1826.

Cassini was one of our best students of the Composites, and it would have been well if Lessing, Bentham & Hooker, Gray, Klatt, and Hoffman had paid more attention to his genera, most

of which were well founded. *Psacalium* is a very natural genus, just as well distinguished from *Cacalia* as understood by Gray as it is from *Senecio*, by the style which is practically *Vernonioid*, i. e., the branches are filiform, elongate, spirally curved, acute, neither truncate nor with a hair-pencil at the end. The same kind of style is found in *Gynura* and in some segregates of *Liaburn*. The genus differs from *Senecio* in the white or whitish corollas, with a long slender tube, a short broadly campanulate throat and elongate lobes, several times as long as the throat. The heads are always discoid, as in so-called *Cacalia*, and the basal leaves always with peltate blades. The latter character is not found in any of the other genera, included in *Cacalia*. It is found, however, in a group of species still included in *Senecio*, but these species have radiate heads, short corolla lobes and truncate style-tips with a terminal pencil.

Bracts decidedly pubescent or puberulent.
Leaf-blades deeply cleft, the divisions again lobed or coarsely toothed.
Achenes tomentulose; heads nodding; leaves of the branches of the inflorescence linear-filiform. 1. *P. Holwayanum.*
Achenes glabrous; heads not nodding; leaves of the inflorescence foliaceous or subulate.
Heads few; involucral bracts 12–16, arachnoid-villous, 12–18 mm. long.
Stem and leaves decidedly pubescent.
Heads 20–40-flowered; bracts 15–18 mm. long; primary divisions of the basal leaves usually 5-lobed. 2. *P. Conzattii.*
Heads 12–20-flowered; bracts about 12 mm. long; primary divisions of the basal leaves 3-lobed. 3. *P. Coulteri.*
Stem and leaves glabrous. 4. *P. thyrsoideum.*
Heads numerous; involucral bracts 5–8, short-hirsute, about 10 mm. long or less.
Bracts 8–10, about 10 mm. long; flowers 8–12.
Ultimate lobes of the basal leaves rounded, obtuse, mucronate. 5. *P. peltatum.*
Ultimate lobes of the basal leaves lanceolate, acute. 6. *P. argutum.*
Bracts 5 or 6, usually less than 10 mm. long, striate; flowers 5 or 6.
Involucre 8–10 mm. long; bracts ovate-oblong; lobes of the basal leaves acute. 7. *P. megaphyllum.*
Involucre 5–6 mm. long; bracts oblong; lobes of the basal leaves rounded, obtuse and mucronate. 8. *P. obtusilobum.*

Leaf-blades sinuately lobed, the lobes broadly triangular, merely denticulate; achenes hirsute; involucre puberulent. 14. *P. Langlassei.*

Bracts glabrous or slightly puberulent.

Basal leaf-blades divided to near the center into lance-linear divisions. 9. *P. peltigerum.*

Basal leaf-blades lobed half-way to the center or less deeply into broad divisions.

Leaf-blades divided half-way to the center; divisions again lobed. 10. *P. Nelsonii.*

Leaf-blades usually divided less than half-way to the middle; divisions toothed or denticulate.

Inflorescence cymose-paniculate; bracts yellowish, obtuse or rounded at the apex. 11. *P. poculiferum.*

Inflorescence elongate-paniculate; bracts more or less purplish, acute or acutish.

Basal leaf-blades 1.5–2.5 dm. broad; lobes about 7, ovate, acute; inflorescence with many heads; leaves of the branches of the panicle subulate. 12. *P. tabulare.*

Basal leaf-blades less than 1 cm. broad; lobes not more than 5; leaves of the inflorescence foliaceous. 13. *P. laxiflorum.*

1. **Psacalium Holwayanum** (B. L. Robinson) Rydb.

Cacalia Holwayana B. L. Robinson, Proc. Am. Acad. **43:** 45. 1907.

This is characterized by its tomentose achenes and nodding heads, and by the leaves of the inflorescence, which are linear-filiform. The type came from Uruapan, Michoacán.

MICHOACÁN: *Holway 3617* (type); *Pringle 13297, 13672; Langlassé 576.**

2. **Psacalium Conzattii** (Rob. & Greenm.) Rydb. n. sp.

Cacalia peltata Conzattii Rob. & Greenm. Proc. Am. Acad. **32:** 49. 1896.

This was described as a variety of *C. peltata* but is distinguished by its few large heads with 12–16 bracts and 20–40 flowers. It is more closely related to the next, differing in its larger heads, longer bracts, more flowers, and by its more lobed leaves. The type came from San Filipe, Oaxaca.

OAXACA: *Pringle 6238; Conzatti 27.*

* This might have come from Guerrero.

3. **Psacalium Coulteri** (Greenm.) Rydb. n. sp.

Cacalia peltata Coulteri Greenm., Proc. Am. Acad. **40:** 51. 1904.

I also believe this to be specifically distinct from *C. peltata*, differing in the larger heads with 12–20 flowers and about 12 villous instead of hirsutulous bracts. The type locality is Real del Monte, Veracruz.

PUEBLA: *Purpus 3038.*
MEXICO: *Rose & Painter 7939.*
MICHOACÁN: *E. W. Nelson 6582.*
VERACRUZ: *Coulter* (type).

4. PSACALIUM THYRSOIDEUM DC. Prodr. **6:** 335. 1837.

Senecio insignis Hemsley, Biol. Cent. Am. Bot. **2:** 242. 1881.

This was described from specimens collected by Haenke in Mexico, and has not been rediscovered as far as I know. It is known to us only through De Candolle's short description, which does not fit any of the species collected in later years. Hemsley referred it to *Senecio* in which the specific name *thyrscideum* was preoccupied.

5. PSACALIUM PELTATUM (H.B.K.) Cass. Dict. Sci. Nat. **43:** 461. 1826.

Cacalia peltata H.B.K. Nov. Gen. & Sp. **4:** 170. 1820.
Senecio peltiferus Hemsley, Biol. Cent. Am. Bot. **2:** 245. 1881.

This is the type species of the genus, and was originally collected in woods near Patzcuaro, Michoacán.

MICHOACÁN: *Humboldt; Pringle 3340; Seler 1259.*
MORELOS: *Pringle 9871.*

6. **Psacalium argutum** Rydberg sp. nov.

Stem 1 m. high or more, striate, finely crisp-hispidulous; petioles of the basal leaves 2–3 dm. long; blades 2–3 dm. broad, divided half-way to the center or deeper, strongly reticulate, hispidulous on both sides; primary lobes 7 or 8, obovate in outline, usually 5-lobed and the upper lobes again lobed, the ultimate divisions lanceolate and acute; sinuses rounded; upper stem-leaves oblanceolate, entire or with a few teeth or lobes, those of the inflorescence mostly oblong or lanceolate and entire; heads

many, in a leafy panicle; involucre campanulate-turbinate, 12–13 mm. high, about 10 mm. broad, subtended by 1–3 narrowly linear leaves, scarcely longer than the bracts; bracts about 8, lance-linear, acute, hispidulous on the back; flowers 10–12; corolla-tube 7 mm. long; throat 0.5 mm. long; lobes nearly 5 mm. long; achenes glabrous; pappus 7 mm. long.

Type collected at San Luis Potosi, 1879, *Schaffner 725* (herb. N. Y. Bot. Gard.).

P. argutum is closely related to *P. peltatum* differing in the outline and cut of the leaves.

SAN LUIS POTOSI: *Schaffner 725; Parry & Palmer 543.*

DURANGO: *E. W. Nelson 4954.*

7. **Psacalium megaphyllum** (Rob. & Greenm.) Rydb.

Cacalia megaphylla Rob. & Greenm., Am. Jour. Sci. III. **50:** 157. 1895.

This is related to the two preceding, differing in the smaller 5–6-flowered heads and usually only 5 bracts. The type came from Guadalajara, Jalisco.

JALISCO: *Pringle 2490.*

MORELOS: *Pringle 6165.*

MICHOACÁN: *Arsène 2386.*

PUEBLA: *Nicolas 334; Arsène* (in 1908).

8. **Psacalium obtusilobum** (Rob. & Greenm.) Rydb.

Cacalia obtusiloba Rob. & Greenm. Am. Jour. Sci. III. **50:** 158. 1895.

It differs from the last in the round-lobed basal leaves and the smaller involucre. It is known only from the type collection from Sierra de San Filipe, Oaxaca, *Pringle 5840.*

9. **Psacalium peltigerum** (Rob. & Seaton) Rydb.

Cacalia peltigera Rob. & Seaton, Proc. Am. Acad. **28:** 111. 1893.

This is characterized by its deeply divided leaf-blades, the divisions again divided into lanceolate or lance-linear lobes; the bracts are 5 or 6, glabrous, and the flowers 5–7. Type locality, Rio Blanco, Jalisco.

JALISCO: *Pringle 9872, 4627, 5154; Palmer 171.*

10. **Psacalium Nelsonii** Rydberg sp. nov.

Stem 5 dm. high or more, sulcate, tomentulose-puberulent; basal leaves long-petioled; blades about 3 dm. broad, cleft

half-way to the center, short-pubescent above, tomentose beneath; divisions 7–8, cuneate in outline, mostly 3-lobed and sinuately toothed, the ultimate lobes broadly ovate; heads numerous in an elongate panicle; involucre campanulate, about 8 mm. long, 6 mm. broad, glabrous, purplish; bracts 9–10, oblong, acute; flowers about 10; corolla-tube 5 mm. long; lobes 2.5 mm. long, linear-oblong; achenes glabrous; pappus-bristles 6 mm. long, white.

Type collected in the vicinity of Cerro San Filipe, Oaxaca, 1894, *E. W. Nelson 1111* (U. S. Nat. Herb. *no. 908018*).

This intermediate between the preceding and the next following. The leaves are divided half-way to the center into oval sinuately lobed divisions. The inflorescence is elongate-paniculate.

11. **Psacalium poculiferum** (S. Wats.) Rydb.

Cacalia poculifera S. Wats., Proc. Am. Acad. **26:** 143. 1891.

The leaf-blades are divided less than half-way to the center into broad divisions, again lobed or toothed with triangular lobes or teeth; the inflorescence is cymose-paniculate.

JALISCO: *Pringle 9874, 4414.*

TEPIC: *Rose 1935.*

12. **Psacalium tabulare** (Hemsley) Rydb.

Senecio tabularis Hemsley, Biol. Cent. Am. Bot. **2:** 248. 1881.
Cacalia tabularis A. Gray, Proc. Am. Acad. **19:** 52. 1883.
Cacalia macrota Schultz Bip.

This is related to the preceding, but with broader less lobed divisions, more elongate inflorescence and acute purplish bracts. The type was collected in the valley of Orizaba, Veracruz.

VERACRUZ: (Orizaba) *F. Mueller* (in 1855); *Bourgeau 2926* (type).

PUEBLA: *Purpus 5630.*

13. PSACALIUM LAXIFLORUM Benth. Pl. Hartw. 41. 1840.

Senecio Moreliae Hemsley, Biol. Cent. Am. Bot. **2:** 243. 1881.

This is characterized by its small blades of the lower leaves and the more foliaceous leaves of the inflorescence. The type came from Morelia, Michoacán.

MICHOACÁN: *Hartweg 318.*

DURANGO: *Rose 2337.*

14. **Psacalium Langlassei** Rydberg sp. nov.

Stem 7.5 dm. high or more, sulcate, scabrous-puberulent, brownish; basal leaves long-petioled, the petiole 1.5–2 dm. long; blade about 1.5 dm. broad, strongly veined, short-pubescent on both sides, 9–10-ribbed, 9–15-lobed; lobes broadly triangular, broader than long, mucronulate-denticulate; leaves of the inflorescence linear or linear-filiform; heads in an elongate panicle; involucre 15–17 mm. high, and nearly as broad; bracts about 10, linear, acute, glandular-puberulent, acute; flowers 15–20; corolla-tube 8 mm. long; throat scarcely 1 mm. long; lobes linear, 3 mm. long; achenes hirsute, 5 mm. long; pappus-bristles white, 10 mm. long.

Type collected in the Sierra Madre, Michoacán or Guerrero, 1898, *E. Langlasse 576* (U. S. Nat. Herb. *no. 386047*).

The species resembles somewhat the last two in its leaf-form, but the heads are larger, like those of *P. peltatum* and its relatives, the bracts about 10, puberulent, and the achenes are hirsute. It is known only from the type collection.

CACALIA CALOTRICHA Blake, Contr. Gray Herb. II. **52**: 58. 1917.

This should probably be referred to Senecio.

PERICALIA Cass. Dict. Sci. Nat. **48**: 459. 1827.

This genus has the short corolla-lobes and the style-branches of *Senecio*, but the corollas are white or nearly so, the throat is elongate, narrowly funnelform, the lobes conspicuously rolled back after anthesis. The achenes are subcylindric, strongly 10-ribbed, the pappus of barbellate white bristles, slightly clavate at the tip, and the leaves are palmately ribbed and lobed.

Leaves sessile. 1. *P. sessilifolia.*
Leaves petioled.
  Leaves of the inflorescence conspicuous, foliaceous, ovate. 2. *P. suffulta.*
  Leaves of the inflorescence linear or linear-filiform.
    Stem glabrous, leafy throughout. 3. *P. ovatifolia.*
    Stem pubescent, leafy at the middle only. 4. *P. michoacana.*

1. **Pericalia sessilifolia** (H. & A.) Rydb.

Cacalia sessifolia H. & A. Bot. Beechey Voy. 436. 1841.

Schultz Bipontinus transferred it to Senecio under the name *S. Beecheyanus*. So did also Hemsley who, however, retained

the original specific name. The type was collected between San Blas and Tepic.

TEPIC: *Palmer 1832: Rose 2828.*

2. **Pericalia suffulta** (Greenm.) Rydb.

Cacalia suffulta Greenm. Proc. Am. Acad. **32:** 310. 1897.

The type was collected above Cuernavaca, Morelos.

MORELOS: *Pringle 9876, 6626* (type).

3. **Pericalia ovatifolia** (Schultz Bip.) Rydb.

Senecio ovatifolius Schultz Bip. Flora **28:** 498. 1845.

This is the type of the genus, which was based on *Cacalia cordifolia* H.B.K.,* not *C. cordifolia* L. 1781. Cassini, however, did not make the combination *Pericalia cordifolia*, which appeared for the first time as a synonym in De Candolle's Prodromus.† Hemsley transferred it to *Senecio* as *S. cardiophyllus*. The type came from Santa Rosa, Mexico.

MEXICO: *Purpus 5625; Vischer 14.*

JALISCO: *Pringle 9869, 1736; Palmer 576; Safford 1451.*

SAN LUIS POTOSI: *Palmer 47.*

MICHOACÁN: *Arsène 7347, 5729.*

4. **Pericalia michoacana** (B. L. Robinson) Rydb.

Cacalia michoacana B. L. Robinson, Proc. Am. Acad. **43:** 46. 1907.

This is known only from the type collection from Uruapan, Michoacán, *Pringle 10117.*

MESADENIA Raf.; Loud. Gard. Mag. **8:** 247. 1832.

This is the same as CACALIA section CONOPHORA of De Candolle or CONOPHORA Niewl. The genus is closely related to *Odontotrichum* but the corolla has a distinct campanulate throat and the achenes are oblong and terete. It differs from the discoid species of *Senecio* in the white or whitish corollas and the longer corolla lobes. Usually the center of the receptacle is produced into a cone-shaped prolongation which gave the name *Conophora*.

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* Nov. Gen. & Sp. **4:** 168. 1820.

† DC. Prodr. **6:** 328. 1837.

The species are all North American and have been treated by Small in his Flora of the South Eastern United States with the exception of *Mesadenia Elliottii* R. M. Harper* and the following species:

Mesadenia angustifolia Rydberg sp. nov.

Cacalia lanceolata ? Ell. Bot. S. C. & Ga. **2:** 311. 1824. Not *C. lanceolata* Nutt. 1818.

Mesadenia lanceolata Small, Fl. SE. U. S. 1301, in part. 1903.

Stem terete, glabrous, 5–15 dm. high; lower leaves petioled, the upper sessile; petioles of the lower leaves 5–15 cm. long; blades narrowly lanceolate, 1–2 dm. long, less than 2 cm. wide, 3-ribbed or indistinctly 5-ribbed, often glaucescent beneath, entire or distantly sinuate-dentate, acuminate; upper leaves reduced, linear or lance-linear, less than 1 cm. wide, acute or more commonly acuminate; involucre 9–10 mm. high, 4 mm. broad; bracts linear-oblong, acute, slightly scarious-margined; corolla-tube 4–5 mm. long; throat 1.5 mm. long; lobes lance-linear, 3 mm. long; achenes about 5 mm. long, obscurely ribbed; pappus-bristles 6–7 mm. long.

Type collected in the Everglades, between Fort Lauderdale and Miami, 1911, *Small, Carter & Small 3318* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Throughout Florida to southern Georgia and Louisiana.

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* Torreya **5:** 184. 1905.

Plant Novelties from Florida*

JOHN K. SMALL

The species and genera proposed and described on the following pages represent discoveries made, for the most part, in the course of exploration in peninsular Florida during the past few years by the writer and his associates in the field-work.

Tradescantia roseolens Small, sp. nov. Stems tufted, 2–4 dm. tall, pubescent, especially above, with unequal ascending glandless hairs, ultimately branched; leaves elongate, the basal and lower cauline equalling or exceeding the stem, gradually tapering, mostly involute, pubescent with unequal hairs, striate, the margins reddish, the veins reddish in the sheaths: bracts elongate, slightly saccate at the base, colored like the leaves and similarly pubescent, but more copiously so: flowers numerous, rose-scented; pedicels slender-clavate, densely pubescent with short spreading gland-tipped hairs; sepals elliptic 9–10 mm. long, pubescent like the pedicels and somewhat tufted at the apex, margenta-margined; petals blue, 13–16 mm. long, orbicular-ovate, erose-crenulate; anthers lemon-yellow; ovary hirsutulous; style glabrous; capsule not seen.—Inland sand-dunes, southern peninsular Florida.

The genus *Tradescantia*, already generously represented in the southern States, is now augmented by the species described above. A species of northern peninsular and eastern Florida, *Tradescantia longifolia*, is the nearest relative of *T. roseolens*. The latter differs from its relative, not only in structural features, such as smaller flowers and glandless stem, but also in the fragrance of the flowers which resembles that of tea-roses, hence the specific name. *Tradescantia roseolens* inhabits the "scrub" or that portion of it in the southern part of the lake region. It is particularly plentiful on the ancient dunes between Avon Park and Sebring. It is often so abundant that the fragrance of its flowers fills the air in the neighborhood of the plants. Plants are sometimes found in the gardens of recently established settlements, but whether their presence there is the result of introduction or the remains of the original plant covering of the

* The type specimens of all the novelties described in this paper are in the herbarium of The New York Botanical Garden.

region is not known. The plant was first observed near Sebring, Florida, in April, 1919.

The specimens on which the above description is based were collected south of Avon Park, Florida, by the writer on May 23, 1921. Plants have been observed and collected in the same general region in successive years. Live specimens sent to The New York Botanical Garden in 1919 have flowered each succeeding year.

Delopyrum basiramia Small, sp. nov. Annual, glabrous: stems and branches few or many (10–70) from the top of a woody tap-root, slender, wiry-filiform in the inflorescence; leaves slenderly linear, mostly 1–2.5 cm. long, acute, revolute; ocreae terminated by setaceous brown bristles; ocreolae short-acuminate: hypanthium-base clavate, nearly 1 mm. long at maturity; sepals of the pistillate flowers spatulate to linear, the inner about 2 mm. long, much exceeding the outer; achene subulate, fully 2.5 mm. long, thrice as long as thick, much exceeding the loosely investing calyx.—Inland sand-dunes ("scrub"), southern end of the lake region, Florida.

The following synopsis indicates some of the characters that distinguish *D. ciliatum* and *D. basiramia*.

Achene ellipsoid-ovoid; hypanthium-base obconic; upper ocreae leaf-bearing; fruiting calyx persistent. 1. *D. ciliatum.*

Achene subulate; hypanthium-base clavate; upper ocreae leafless; fruiting calyx deciduous. 2. *D. basiramia.*

The buckwheat family, to which the above proposed species belongs, is well represented in the Florida "scrub." Several well-known genera are often abundantly in evidence, and also a new one which is proposed on a subsequent page. The type specimens of *Delopyrum basiramia* were collected by the writer on the high dunes north of Kuhlman, May 23, 1921.

Kuhnistera truncata Small, sp. nov. Plants 1 m. tall or less with rather slender glabrous branches; leaflets mostly 5–7, sometimes fewer; blades narrowly elliptic to elliptic-oblanceolate, 3–6 mm. long, obtuse, short-petioluled; spikes short and thick; lower bracts of the involucre suborbicular or orbicular-reniform, abruptly pointed; calyx villous; tube campanulate; lobes filiform-setaceous, conspicuously plumose; corolla white; standard about 7 mm. long, the blade shorter than the claw, emarginate at the apex, narrowly cuneate at the base; wings and keel-petals about 5 mm. long, slender-clawed, the blades truncate-emarginate at the apex; pod 2.5–3 mm. long, strigose.—Pine-palmetto lands, southern peninsular Florida.

The genus *Kuhnistera* embraced but one described species, until *K. adenopoda* was recently proposed. It and the above described species are rare plants compared to the abundance of the type species *K. pinnata* which also has a wide geographic range.

The present species, *K. truncata*, differs from *K. pinnata* in many respects—the larger spikes which are borne in a more open inflorescence, the broad leaflets, the long-clawed petals in which the claws are about as long as the blades, in the longer standard, and the larger pods. The petals, too, are truncate or slightly emarginate instead of rounded at the apex as they are in *K. pinnata*.

The type specimens were collected at Earman, Florida, by Fannie C. Rane, March 2, 1921. Specimens were also collected at Jupiter, Florida, many years ago by C. Hitchcock.

Polygala cumulicola Small, sp. nov. Stem arising from a coralloid root, simple below or much-branched, closely appressed-pubescent; leaf-blades spatulate to broadly linear below, elliptic to linear or elliptic-lanceolate above, sparingly fine-pubescent, short-petioled; racemes short, few-flowered; bracts lanceolate, scarious-tipped; pedicels glabrous; outer sepals green, glabrous, about 2 mm. long, slightly scarious-margined; wings rose-purple, 4–5 mm. long, not conspicuously veiny; keel about 3.5 mm. long; pod oblong-elliptic, 5–5.5 mm. long, nearly or quite as long as the wings, not stipitate, notched; seed-body 2.5 mm. long, long-hairy.—Active sand-dunes, eastern coast of southern peninsular Florida.

Heretofore nine species of *Polygala* were known to be endemic in Florida. The following proposed one adds another. It is a beautiful species restricted to the coastal dunes, mostly near the barrier beach, of the lower eastern coast of the Florida peninsula. It is characterized by the bright-green of the foliage and the deep rose-purple of the flowers. It maintains itself in the loose sand by means of deeply buried coralloid roots. The stem accommodates itself to the depth of the sand quite readily. Thus we find the leafless part of the main stem either an inch long or a foot long, according to the movements of the sands and the consequent adjustment of the stems. It differs from *Polygala grandiflora* as far as the inflorescence is concerned, by the short racemes, the deep rose-purple wings which are not conspicuously veiny at maturity, the sessile pod, and the narrower long-hairy seeds.

The type specimens were collected on the sand-dunes opposite Miami, by J. K. Small and G. K. Small, *4568*. Other specimens in the herbarium of The New York Botanical Garden from the same region, collected by the writer are: numbers *3999*, *4575*, *5872*, *6939*.

Ilex cumulicola Small, sp. nov. A shrub or a small tree with copiously fastigiate-branched stems, the head often dense, the branchlets with pale-gray or whitish bark; leaves numerous, evergreen, deep-green; blades leathery, cuneate-obovate, 2.5–4.5 cm. long, sinuate-spinescent, with the spine-tipped teeth directed forward, nearly smooth and sometimes slightly shining above, dull beneath, short-petioled; fertile flowers one or two together; sepals broadly deltoid or somewhat reniform, acute or obtusish, ciliate; petals suborbicular to ovate, 3.5–4 mm. long; stamens mostly shorter than the petals, abortive; drupe globose, about 8 mm. in diameter, deep-red; nutlets 5–5.5 mm. long, ribbed and finely cross-veined on the back.—Inland sand-dunes ("scrub"), in the southern part of the lake region, Florida.

The "scrub" of Florida not only yields new endemic herbs, but shrubs and trees as well. The following proposed species of *Ilex* is one of this class. Other woody plants are described on succeeding pages.

The discovery, on Christmas Day, 1922, of this decorative holly in the southern end of the lake region of Florida was a surprise. The plants grow on the ancient sand-dunes. They are more copiously and rigidly branched than those of *Ilex opaca*. The leaves are rather closely toothed, with the teeth directed somewhat forward. The sepals are more reniform, merely acute or even obtusish, and eciliate. The pulp of the drupe is rather dry and the shorter and thicker nutlets are less prominently ribbed. The fresh fruits when crushed have the fragrance of apples.

The specimens on which the species is based were collected by the writer on the inland sand-dunes about Lake Nancesowe (Lake Jackson) near Sebring, Florida, December 25, 1922 (fruits), and April 15, 1923 (flowers).

Ilex Buswellii Small, sp. nov. A shrub 3 m. tall or less, much-branched throughout, the branches gray, the foliage twigs glabrous, dark-purple, the flower-bearing twigs spur-like, scaly by the persistent petiole bases; leaves deciduous; blades elliptic to ovate-elliptic, 2–3 cm. long, glabrous or nearly so, acute or short-acuminate, serrulate above the middle, dark-green and

somewhat shining above, slightly paler beneath, rather abruptly narrowed into short slender petioles; staminate flowers in clusters of 12–25, on short clavate pedicels; calyx 2–2.5 mm. wide in anthesis, about 4 mm. wide in fruit; lobes 4 or 5, more or less reniform in anthesis, becoming ovate or half-orbicular, ciliate; corolla white, 4–5 mm. wide; lobes 4 or 5, suborbicular or nearly so, ciliolate; stamens 4 or 5, or rarely more, 1.5–2 mm. long; anthers oval, longer than the filaments; ovary rudimentary; drupe globose, 9–11 mm. in diameter, red, shining; nutlets narrow, 4.5–5 mm. long, sharply ribbed on the back.—Near the Caloosahatchee above Fort Myers, Florida.

The above proposed new holly belongs to a section of the genus *Ilex* different from that of the preceding one. It is a relative of *Ilex caroliniana* from which it differs in the somewhat coriaceous leaf-blades, the reniform calyx-lobes of the staminate flowers, the broader anthers, and in the larger fruits.

The type specimens were collected by W. M. Buswell, October 2, 1923, in fruit. Flowering specimens were collected later, December, 1923, by the writer in company with Mr. Buswell.

Cyrilla arida Small, sp. nov. A small tree, perhaps also a shrub, with slender, usually vine-like branches with gray bark, the twigs glabrous; leaves rather approximate at the ends of the twigs; blades elliptic-spatulate, 1–3 cm. long, coriaceous, usually acute or acutish, veiny at maturity, entire, glabrous, acuminate at the base, short-petioled; raceme-like panicles narrow, 3–5 cm. long in anthesis, short-peduncled, the rachis glabrous, the bracts and the bractlets subulate; sepals lanceolate, 1–1.5 mm. long, acuminate; petals elliptic-lanceolate, 2–2.5 mm. long, somewhat acuminate; anthers notched at both ends; capsule globose-ovoid, about 2 mm. long, often depressed.—Inland sand-dunes ("scrub"), southern end of the lake region, Florida.

To anyone accustomed to see the two well-known species of *Cyrilla* (*C. racemiflora* and *C. parvifolia*) growing in their native haunts—the swamps and titi-bogs of the lowlands—the occurrence of trees of this genus growing on the dry inland dunes of white sand is surprising. The species just described is the third *Cyrilla* for Florida and for the continental United States. This *Cyrilla*, growing high up on the dry inland sand-dunes, is associated with a dozen or more novelties, of both specific and generic rank, some of which are described in this paper. It differs from *C. parvifolia* in the narrower sepals and petals and the notched anthers, as well as in the vine-like branches.

The type specimens were collected by the writer between Avon Park and Sebring, December 13, 1920.

Lechea cernua Small, sp. nov. Plants 3–6 dm. tall, the foliage pubescent; flowering stems stout, often clustered, closely fine-pubescent, widely branched above; leaves of the inflorescence-branches finely pubescent; blades elliptic or nearly so, mostly 4–6 mm. long, acute; basal shoots stout, mostly 2–5 dm. long, usually much-branched, pale-gray with short dense shaggy somewhat viscid pubescence; leaves of the shoots numerous; blades suborbicular, oval, or elliptic, 4–12 cm. long, acute or abruptly pointed, copiously pale-pubescent, sessile; bracts of the inflorescence narrower than the branch-leaves; flowers very numerous; pedicels 1.5–2 mm. long, deflexed at maturity, appressed-pubescent; outer sepals two minute scales; inner sepals three, suborbicular, 1.5–2 mm. long, appressed-pubescent; pod obovoid, 2 mm. long, slightly exserted, glabrous, smooth, shining; seeds nearly 1.5 mm. long.—"Scrub" on inland sand-dunes in the lake region and ancient dunes on the eastern coast, peninsular Florida.

The majority of the known North American species of *Lechea* occur naturally in Florida. Recent exploration indicates that several additional endemic species occur there. The above described one is the most conspicuous. The plants of this species are the most robust of any of our species of *Lechea*. Technically it is related to *Lechea racemulosa*. Its vegetative and floral parts are larger throughout. It may be distinguished from its relatives, and in fact from all our lecheas by the great development of basal shoots with broad leaves and by the nodding capsules.

The type specimens were collected by the writer on the ancient sand-dunes near Sebastian, Florida, September 6, 1922. Specimens of the same species have been collected in the "scrub" on the ancient dunes of the southern end of the lake region.

Chionanthus pygmaea Small, sp. nov. Shrub with underground stems, the branches 2–4 dm. tall, sometimes branched at the base, and sometimes also above; leaves few, remote or approximate on the short branchlets; blades thin leathery, elliptic or nearly so, 3–9 cm. long, short-petioled; flower-clusters rather dense; calyx-lobes broadly ovate or orbicular-ovate, about 1 mm. long, obtuse or minutely pointed; corolla-lobes narrowly linear, about 1 cm. long; anthers ellipsoid, less than 2 mm. long, abruptly blunt-tipped; drupe oval, 2–2.5 cm. long, purple-black; putamen ellipsoid, constricted at the base, 1.5–2 cm. long.

Inland sand-dunes ("scrub"), southern end of lake region, Florida.

Chionanthus has really been a monotypic genus, unless the Asiatic plant described as *Linociera chinensis* be actually congeneric with it. The species described above is a true *Chionanthus*, differing from the typical species as indicated in the description, appended synopsis, and note.

Corolla-lobes about 2 cm. long; anthers acuminate; drupe 1–1.5 cm. long. 1. *C. virginica.*

Corolla-lobes about 1 cm. long; anthers abruptly blunt-tipped; drupe 2–2.5 cm. long. 2. *C. pygmaea.*

The discovery of this plant adds another to the class of shrubs with underground stems—thus rendered less likely to elimination from the flora by fire. As far as we have observed, the present shrub has an average height of about a foot. In proportion to its size it is very floriferous. Curiously enough the flowers are about half the size of those of its larger relative, the well known fringe-tree (*Chionanthus virginica*), while the fruits are about twice as large or more.

The type specimens were collected by the writer on the ancient sand-dunes between Avon Park and Sebring, Florida, May 23, 1921 (flower) and August 30 and 31, 1922 (fruit).

Clinopodium Ashei (Weatherby) Small. Plants annual or biennial, but woody; stem much-branched, 1–5 dm. tall, minutely cinereous-pubescent and more or less glandular; leaves numerous, usually mainly clustered on short branchlets; blades thick, elliptic or nearly so if flattened out, strongly revolute, almost tubular, 4–9 mm. long, obtuse, entire, pubescent like the stem, glandular-punctate, sessile; flowers solitary in the leaf-axils, short-pedicelled; calyx pubescent like the leaves, 7–8 mm. long, the tube slightly longer than the lips, with a ring of hairs in the throat; upper lip reniform, slightly 3-lobed, lower lip with two subulate-lanceolate lobes; corolla lavender, 12–13 mm. long, finely pubescent without; tube pubescent within; the upper lip flattish, with the slightly 2-lobed tip curved upward, the lower lip strongly 3-lobed, with the broad middle lobe again lobed; stamens 4, exserted, the upper (posterior) pair the shorter; filaments glabrous, anthers unappendaged; style glabrous. [*Satureja Ashei* Weatherby, Rhodora **26:** 80. 1924.]—Inland sand-dunes ("scrub"), lake region, Florida.

The "scrub" has long been known to harbor a bright-red flowered calaminth. Several years ago a bright-lavender

flowered species was discovered at several localities. It grows on the otherwise desert-like sands by the acre, and when in flower is very conspicuous and so plentiful as to make extensive seas of lavender in the landscape. Recently this plant was described as a new species of *Satureja*. The preceding description was made in the field in April, 1923.

This labiate technically belongs to *Clinopodium*, and it is closely related to *Clinopodium dentatum*, a rare and endemic species of the upper Apalachicola River region of Florida. It differs from that species in the more compactly branched habit, the entire tightly revolute leaf-blades, the larger upper lip of the calyx, and the less deeply notched middle lobe of the lower corolla lip. In habit, foliage, and inflorescence it may be considered as distantly related to *Clinopodium coccineum* and *C. macrocalyx*, but the proportions of the parts and colors of the flowers are quite different.

Conradina grandiflora Small, sp. nov. Shrub 2 m. tall or less, with few, irregular virgate, often long arching branches, the bark reddish, the twigs puberulent; leaves somewhat fascicled; blades spatulate, but more or less clavate on account of the revolute margins, mostly 10–25 mm. long, often puberulent and punctate above, but shining, white canescent beneath, short-petioled; flowers few together at the ends of the branches, nodding, short pedicelled, the cymes often 3-flowered; calyx becoming 6.5–7.5 mm. long, minutely pubescent and often with some slender bristly hairs; upper lip with a broad middle lobe and 2 lateral narrower curved lobes; lower lip exceeding the upper, with 2 subulate lobes; corolla showy lavender and spotted with magenta; upper lip ovate, 7–9 mm. long, rounded or truncate at the apex, sparingly pubescent without; lower lip much larger than the upper, much spotted in the center, with 2 lateral somewhat reniform lobes and a median suborbicular or orbicular-reniform notched lobe; stamens curved under the upper corolla-lip, included; style exserted; nutlets nearly 1.5 mm. long.—Inland sand-dunes, lower eastern coast region of Florida, and locally on the dunes ("scrub") in the lake region.

Lavender-shaded flowers of an odd type may be seen on shrubby plants in the "scrub" of the lower eastern coast of Florida during any month of the year. The habit of the plants of *Conradina canescens* is stiff and compact. That of *C. grandiflora* conveys the opposite impression The stem and branches are elongate and straggling, and sometimes when growing among

larger woody plants the branches elongate and sprawl among the branches of shrubbery. The present species differs from *C. canescens* in the larger flower, particularly the large copiously spotted corolla with the reniform lateral lobes of the lower lip. The type specimens were collected by the writer on the ancient sand-dunes near Sebastian, Florida, April, 1921.

Borreria terminalis Small, sp. nov. Perennial with a woody, often branched, root; stems simple or several together from the branching top of the root, 1–4 dm. tall, simple, at least above the base, or rarely branched, glabrous, or sparingly pubescent above; leaves opposite, usually with more or less prominent clusters of smaller leaves in their axils; blades spatulate to elliptic-spatulate, linear or narrowly linear-lanceolate, acute, glabrous, often revolute, narrowed to the bases which are joined with the deltoid or lanceolate stipules; flowers mainly or wholly in a terminal glomerole, sometimes also in less dense glomeroles in the upper axils; sepals in pairs, finely-pubescent, the 2 larger lanceolate or triangular-lanceolate, 1.5–2 mm. long, the 2 smaller broad and irregular; corolla white, 3.5–4 mm. long; lobes deltoid, obtuse, shorter than the tube; anthers ellipsoid, about 1 mm. long, much shorter than the filaments; fruits 2.5–3 mm. long, exclusive of the persistent sepals.—Pinelands, Everglade Keys and lower Florida Keys.

The *Borreria* here described has heretofore been referred to the little known Mexican *B. podocephala*. *Borreria terminalis* is a parallel of the Antillian *B. verticillata*. It has the same habit and exhibits nearly the same range of variation in its foliage. There are, however, decided differences in the flowers and fruits. The Floridian species differs from the Antillean in the relatively short corolla which only slightly exceeds the sepals, the lobes of which are about as long as the tube, the short ovoid anthers, and the larger fruits.

Aster plumosus Small, sp. nov. Stem 1 m. tall or less, branched above, finely pubescent, the branches more closely pubescent than the stem, villous-hirsute near the tips; leaf-blades various, those of the lower part of the stem not seen, those above linear or nearly so, those of the branches linear-elliptic to lanceolate, mostly 1 cm. long or less, acute, all sessile, finely pubescent on both sides; heads showy, in loose racemes: involucre turbinate-campanulate; bracts linear-acuminate to narrowly linear-lanceolate, imbricated in several series, the inner 6.5–7.5 mm. long, the loosely spreading or recurved green tip with copious long white hairs; ray-flowers about 10; ligules

violet, 7–8 mm. long; pappus tawny; achenes silky-villous.—Dry woods, middle Florida.

Continued exploration in Florida has brought to our attention asters additional to those described about a decade or more ago.*

Aster plumosus is related to *Aster concolor* and it was formerly confused with that well-known species. It differs from *Aster concolor* in its more branching habit, and in the copiously loosely pubescent branches of the inflorescence. The involucre, however, is the more ready means of separation. This is larger than in *A. concolor* and has longer bracts with long, loosely spreading or recurved tips which are green, but the green tips are hidden in the dense white pubescence.

The type specimens were collected in dry sandy soil, Aspalaga, Florida, October, 1897, distributed as a duplicate from the Chapman Herbarium, by the Biltmore Herbarium, as *Aster concolor* L.

Aster simulatus Small, sp. nov. Stem 2–15 dm. tall, wand-like or with few virgate branches, pale-pubescent, the branches, especially near the tips, villous-silky; leaf-blades linear-elliptic to lanceolate or linear-lanceolate, 1–2.5 mm. long or somewhat scale-like and smaller above, more or less silky, acute, entire, sessile; heads in virgate racemes or panicles, showy; involucre turbinate-campanulate; bracts broadly linear to linear-lanceolate, imbricated in several series, the outer with deltoid green tips, the inner 6–7 mm. long, with lanceolate green acute tip, all appressed; copiously pubescent with appressed white hairs; ray-flowers 10–13; ligules violet, 6–7 mm. long; pappus whitish; achene copiously silky.—Pinelands, Everglade Keys, Florida.

Aster simulatus is related to *A. concolor*. It differs from that species in the smaller more scale-like leaf-blades, and the more copiously long-pubescent bracts of the involucre.

The type specimens were collected in the pinelands near the homestead trail, about the Silver Palm Schoolhouse, Dade County, Florida, by the writer and George K. Small, November 26, 1913. Other specimens by number collected during the writer's exploration of the Everglade Keys are *1076*, *2244*, *2740*, *2741*.

DENTOCERAS Small, gen. nov. Shrub, with depressed branches, but perhaps short-lived. Leaves alternate, numerous, jointed at the top of the ocreae. Flowers in small terminal

* Small, Flora of the Southeastern United States; Flora of Miami.

panicles, crowded on the short branches. Sepals mainly white, accrescent, the outer slightly so, the inner decidedly so, but not as specialized wings, the outer appressed to and folded over the edges of the inner. Stamens 8; filaments alternately narrow and with widely dilated and shouldered bases. Achene included. (Generic name from the Latin referring to broader filaments which resemble horns with a lobe or tooth on either side at the base.)

In a few places in the "scrub" of the southern lake region of Florida one may find a depressed shrub forming mats of dark green foliage on the almost snow-white sand of the ancient dunes. The prostrate branches are copiously branched into slender almost innumerable branchlets all of which bear numerous small narrow leaves.

It is associated with a number of rare and local plants, such as species of *Polygonella*, *Delopyrum*, *Chionanthus*, *Cyrilla*, and *Lechea* mentioned on preceding pages.

Dentoceras myriophylla Small. Shrub with prostrate radiating branches 2–20 dm. long, copiously branched, often densely fastigiate; leaves very numerous, clavate, 3–12 mm. long, often fascicled on the short branchlets; panicles usually dense, the racemes short-stalked; outer sepals becoming ovate, boat-shaped, appressed; inner sepals much longer than the outer, oval or orbicular-ovate, often slightly obovoid, 2.5–3 mm. long; achene ovoid or ellipsoid-ovoid, about 2.5 mm. long.—Inland dunes, ("scrub"), southern lake region, Florida.

The plants are conspicuous on account of the green mats on the white sand in which the plant grows, the panicles of white flowers are small and the flowers themselves are intermediate between *Polygonella* and *Delcpyrum*. It differs from both those genera in the calyx, which closely invests the achene, and in the long styles.

The type specimens were discovered by the writer on the inland dunes south of Frost Proof, Florida, April 18, 1920.

DEERINGOTHAMNUS Small, gen. nov. A low shrub with stems clustered on the top of a long fusiform root, the buds red-hairy. Stems of two kinds, foliaceous and floriferous. Leaves alternate, not crowded on the stems; blades of a spatulate or cuneate type, somewhat coriaceous, pinnately veined and finely reticulate. Flowers perfect or polygamous, axillary to leafy bracts, pedicelled, more or less nodding, solitary, or two or three together. Sepals 2–4, green, short, imbricate, appressed. Petals 6–13, white or ochroleucous, elongate, often or a linear

type, imbricate, recurved-spreading. Stamens 14–21, crowded on a flat receptacle; filaments a mere disk-like dilation; anthers parallel, adnate, surmounted by a gland-like protuberance from the connective, extrorse. Carpels 1 or 2, erect, at the center of the receptacle; style wanting; stigma subulate, shorter than the carpel-body, introrse, deciduous. Ovary 1-celled. Ovules 6–8. Fruit usually of one or two carpels, baccate, stipitate, with thin flesh, 1–4 seeded, often somewhat torulose. Seeds very turgid.—(Named for Charles Deering, generous patron of the Sciences and the Arts.)

On one of our detours across the Florida peninsula in April, 1923,* we discovered a very peculiar shrub in the uninhabited pineland wilderness between Punta Gorda and Fort Myers. It is a genus of the custard-apple family, most closely related to the genus *Asimina*. Following is a description of the genus and of the species:

The family Annonaceae has been represented in the continental United States by two genera—*Annona* and *Asimina*. *Annona* is widely distributed geographically, while *Asimina* is not known outside the eastern United States. The third genus, *Deeringothamnus* is still more restricted in range, being confined to limited areas in southern peninsular Florida. It is related to *Asimina* from which it differs in the dimorphous stems, the flat or depressed receptacle, and the narrow nearly uniform unsculptured petals.

Deeringothamnus pulchellus Small, sp. nov. Shrub with clustered stems mostly 3 dm. tall or less, from a succulent-fibrous perpendicular root 3–6 dm. long; leaves bright-green; blades cuneate to spatulate, 3–11 cm. long, obtuse or rounded at the apex, sharply reticulate when dry, glabrous above, at least at maturity, with scattered fuscous hairs, especially on the yellow or orange midrib, beneath, or even glabrous beneath at maturity, acute at the base; flowering stems stouter than the leafy stems, the bracts foliaceous, ovate, oval, or elliptic, relatively broad, thus differing from the foliage leaves, sessile or nearly so; pedicels curved, mostly 1–2.5 cm. long, sparingly pubescent, mostly simple, enlarged at the top; sepals coriaceous, ovate to lanceolate, 4–8 mm. long, acute, stiff, red-pubescent; petals linear, varying to broadest above the middle or below it, recurved-spreading above the middle, usually 1–2 cm. long, (the inner the smaller), the outer finely pubescent, the inner

* To be described in full in a future issue of the Journal of The New York Botanical Garden.

glabrous; stamens 2 mm. long, the anthers much longer than the filaments, the apical gland knob-like; berry obovoid to ellipsoid, but more or less irregular or somewhat torulose, 2–5 cm. long, glaucous; seeds subglobose, but often irregularly impressed.—In low pinelands, DeSoto County, Florida.

The type specimens were collected by the writer in the uninhabited wilderness east of Punta Gorda, April 28, 1923.

SANIDOPHYLLUM Small, gen. nov. Biennial, partly woody herbs with one or more stems from the top of a woody tap-root. Leaves opposite, approximate and decussate at the base of the stem and on short sterile branches, remote on the flower stem; blades narrow, rather subulate. Cymes with elongate spike-like wiry branches. Flowers subtended by two bracts. Sepals 5, unequal, ribbed. Petals 5, spreading, oblique and inequilateral, the blade mostly on one side of the midrib. Stamens mostly 20. Ovary 3-celled. Styles filiform. Stigmas terminal. Capsule narrowly conic, acuminate, the carpels distinct, erect. (Generic name from the Greek, meaning cross-leaf, referring to the decussate leaves of the stems.)

Sanidophyllum, a genus of *Hypericaceae*, is characterized by the short vegetative branches clothed with spreading decussate small linear leaves; the slender wiry flowering branches with small linear remote leaves except near the base of the plant; and the carpels distinct in fruit.

The petals are very inequilateral, the blade being mostly on one side of the midvein. The stamens are usually grouped in 4's.

Sanidophyllum cumulicola Small, sp. nov. Plants with a woody tap-root; leafy branches at or near the top of the tap-root, 5 mm. long or less; flowering stems 2–7 dm. tall, wiry, usually clustered; leaves 1–6 mm. long, spreading on the lower part of the stem, appressed and scale-like above; inflorescence-branches very slender, the ultimate ones zigzag, the bracts scale-like; flowers erect; sepals leathery, broadly linear to ovate, 1–1.5 mm. long, 2–4-ribbed; petals yellow, 3–4 mm. long; capsule 5–6 mm. long, between twice and thrice as long as the calyx, brown, the carpels slender-beaked; seeds oval, less than 0.5 mm. long.—In the "scrub," southern part of lake region, Florida.

The habit of this plant, in life, is suggestive of a yellow-flax (*Cathartolinum*). It resembles several of the Mexican species of *Cathartolinum*, which also have the short basal foliage branches with the decussate leaves.

The type specimens were collected by the writer on the ancient sand-dunes between Avon Park and Sebring, August 30 and 31, 1922.

LITRISA Small, gen. nov. Perennial caulescent herb, the rootstock freely branching and bearing rosettes of leaves on stout caudices from which the flower stems arise. Leaves alternate, the basal ones larger than the cauline; blades fleshy-leathery, becoming parchment-like, entire, parallel-veined. Heads corymbose. Involucre campanulate, few-flowered; bracts few, relatively broad, pubescent. Receptacle slightly chaffy. Corolla purplish, with a short tube and a cylindric throat. Androecium included. Anther-appendages ovate, entire, obtuse. Achene cuneate, ribbed. Pappus of many barbellate bristles.—(Generic name an anagram of *Trilisa*, the species of which the plant under consideration somewhat resembles in habit.)

The prairies of Florida, like the dunes of the lake region, harbor various endemic species of flowering plants. There is one composite herb that is prominent during the summer and fall, by a shade of purple in the inflorescence that is not duplicated in the flora. During the rest of the year it shows itself only by rosettes of fleshy or parchment-like leaves.

Litrisa is a member of the Eupatorieae of the Carduaceae. Its morphological associates are the genera of the group known best by the genus *Laciniaria*. Technically it is most closely related on the one hand to *Trilisa*, by its involucre, and on the other, to *Carphephorus*, by its chaffy receptacle.

Litrisa carnosa Small, sp. nov. Stem 3–8 dm. tall, finely pubescent; basal leaves in a rosette; blades mostly 2–8 cm. long, linear, varying to lanceolate or spatulate, acute; cauline leaves remote; blades sessile; involucres erect; bracts mostly acute or numeronate, the outer ovate, the inner elliptic or broadly linear, about 4 mm. long; achenes 2–2.5 mm. long, pubescent.—Low pinelands and prairies, southern peninsular Florida.

The type specimens were collected by the writer on the Istokpoga Prairie, east of Lake Istokpoga, Florida, August 31, 1922, number *10658*.

AMMOPURSUS Small, gen. nov. Perennial succulent herb, the stem from a long, perpendicular, fleshy root, simple or branched. Leaves alternate, fleshy; blades narrow, entire, punctate, sessile. Heads solitary or in panicles, showy, not radiate, erect. Involucre cylindric-campanulate, many-flowered; bracts broad, in six or more series, appressed, fimbriolate-ciliate. Receptacle naked, honey-combed. Flowers perfect. Corolla rose-purple; tube slender-cylindric; throat thicker than the tube, more or less urceolate; limb slightly zygomorphic, the lobes 5, spreading, about as long as the throat. Stamens

included; filaments filiform-subulate; anthers linear, rounded or emarginate at the apex, cordate at the base, the lobes rounded. Style filiform. Stigmas filiform, usually longer than the style. Achene fusiform, 10–12-ribbed, pubescent. Pappus of numerous capillary barbellate bristles, longer than the achenes.—(Generic name Greek, meaning sand-torch, referring to the habitat and the blazing rose-purple flower-heads.)

The white sands of the inland dunes are an excellent background for showing off the various plants that arise from the desert-like surface from season to season. This is one of the more conspicuous plants of the summer months, chiefly on account of its bright rose-purple flower-heads.

This showy plant is confined strictly to the dry sands of the "scrub." It is well adapted to maintain itself there by a large storage root. *Ammopursas* is related to *Laciniaria*, from which it differs in the succulent foliage, the open inflorescence, the somewhat zygomorphic corollas with inflated throats, and the short pappus. As a genus it is on a par with *Garberia* and *Carphephorus*.

Ammopursus Ohlingerae (Blake) Small. Stem 2–11 dm. tall, solitary or several from the top of the root, usually paniculately branched above, minutely pubescent with pale crisped hairs; leaves fleshy, narrowly linear or linear-clavate, acute, glabrous; involucre about 2 cm. long; bracts numerous, the outer orbicular-reniform, thence gradually longer and narrower up to the linear-spatulate inner ones, all obtuse, the body deep green, punctate, the scarious margins pale; corollas bright rose-purple, about 2 cm. long; tube slender; throat cylindric-urceolate; lobes lanceolate, 5–6 mm. long, acute; achenes fusiform, 8–9 mm. long, about 10-ribbed, densely pubescent with spreading hairs; pappus whitish, much shorter than the corolla, barbellate. [*Lacinaria Ohlingerae* Blake, Bull. Torrey Club **50**: 203. *pl. 9.* 1923.]—"Scrub," southern end of lake region, Florida.

The writer first observed this plant in full flower in various parts of the "scrub" in the southern end of the lake region in August, 1922.

THE NEW YORK BOTANICAL GARDEN,
BRONX PARK, NEW YORK, N. Y.

INDEX TO AMERICAN BOTANICAL LITERATURE

1920–1924

The aim of this Index is to include all current botanical literature written by Americans, published in America, or based upon American material; the word America being used in the broadest sense.

Reviews, and papers that relate exclusively to forestry, agriculture, horticulture, manufactured products of vegetable origin, or laboratory methods are not included, and no attempt is made to index the literature of bacteriology. An occasional exception is made in favor of some paper appearing in an American periodical which is devoted wholly to botany. Reprints are not mentioned unless they differ from the original in some important particular. If users of the Index will call the attention of the editor to errors or omissions, their kindness will be appreciated.

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